



# WEEKLY SAFETY MEETING

## HEXAVALENT CHROMIUM

**Hexavalent** Chromium is a heavy metal component of stainless steel that can increase the risk of lung cancer in humans if inhaled in significant concentrations. The major concern in the mechanical construction industry is the potential for overexposure from fumes created by welding or plasma cutting on stainless steel pipe and ducts, dust from grinding on stainless steel and from skin exposure. In most applications, using localized exhaust ventilation and good welding work practices will mitigate the chances of overexposure. Respiratory protection **will** be required when adequate ventilation is not achievable.

### How hexavalent chromium can harm employees

Hexavalent chromium exposure can occur through direct contact or it can enter the body by breathing air containing the contaminant or by being swallowed. Workplace exposure to Chromium (VI) may cause the following health effects:

**Cancer** — Chromium (VI) is classified as a known carcinogen. Workers exposed to hexavalent chromium in the workplace have much higher rates of lung cancer.

**Respiratory system effects** — Chromium (VI) is a respiratory tract irritant to the nose and throat. Symptoms may include runny nose, sneezing, coughing, itching, and a burning sensation. Repeated or prolonged exposure can cause sores to develop in the nose and result in nosebleeds. If the damage is severe, the nasal septum (wall separating the nasal passages) develops a hole (perforation). Some employees can become allergic to hexavalent chromium so that inhaling chromate compounds can cause asthma symptoms such as wheezing and shortness of breath.

**Eyes** — Chromium (VI) is an eye irritant. Direct eye contact with chromic acid or chromate dusts can cause permanent eye damage.

**Skin effects** — Chromium (VI) compounds are not only powerful skin irritants but also can be corrosive. Contact with non-intact skin can also lead to chrome ulcers. These are small crusted skin sores with a rounded border. Ulcers can penetrate deep into soft tissue or become the site of secondary infections. They heal slowly and leave scars. Common sites for these ulcers include the nail root, knuckles and finger webs, back of the hands, and forearms. Some workers develop an allergic skin reaction, called *allergic contact dermatitis*. This occurs from handling liquids or solids containing hexavalent chromium. Once a worker becomes sensitized, contact with even small amounts can cause a serious skin rash. Allergic contact dermatitis is long-lasting and more severe with repeated skin contact.

Winger performs annual industrial hygiene testing for hexavalent chromium and heavy metals. So far, our testing has proven that our safe work practices are effective and the levels are well below OSHA limits.

### How to Protect Against Overexposure

- ✚ Use localized exhaust ventilation to remove fumes and gases at their source in still air. Keep the exhaust trunk / hood as close to the fume source as possible in order to keep fumes and gases from your breathing zone.
- ✚ Use air blowers to draw fumes away from you and your immediate work area.
- ✚ Keep your head out of the smoke plume.
- ✚ Position your welding hood so that fumes will not rise up under it and into your breathing zone.
- ✚ Use the safest welding method for the job. Stick welding makes much less fume than flux core welding.
- ✚ Use welding rods that produce a low fume. Up to 90% of the fume can come from the rod. Welding guns that extract fumes can capture 95% of the fume.
- ✚ If the ventilation is not adequate, respiratory protection is required.
- ✚ Wear proper PPE for welding: long sleeves, welding jacket or welding sleeves, long pants, welding gloves, safety glasses or goggles under welding helmet and faceshield, safety toed leather work boots, and respirator if necessary. When respiratory protection is required, be sure that you have the required training and proper respirator before starting work.
- ✚ Use proper hygiene.

Meeting Date: \_\_\_\_\_  
Supervisor: \_\_\_\_\_

Trainer: \_\_\_\_\_  
Location: \_\_\_\_\_

**Attendees: (Please print clearly)**

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_____	_____	_____
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_____	_____	_____



# WEEKLY SAFETY MEETING

## HEXAVALENT CHROMIUM QUIZ

1. The major concern in the mechanical construction industry is the potential for overexposure from fumes created by welding or plasma cutting on stainless steel pipe and ducts, dust from grinding on stainless steel and from skin exposure. True or False? \_\_\_\_\_
2. Workplace exposure to Hexavalent Chromium (VI) may cause the following health effects:
  - A. Cancer
  - B. Respiratory Effects
  - C. Eye Damage
  - D. Skin Nail Effects
  - E. All of the above
 \_\_\_\_\_
3. Winger performs annual industrial hygiene testing on Hexavalent Chromium and Heavy Metals during welding. True or False? \_\_\_\_\_
4. You do not need to use any type of ventilation to draw fumes away from you and your immediate work area. True or False? \_\_\_\_\_
5. If the ventilation is not adequate, respirator protection is NOT required. True or False? \_\_\_\_\_
6. Use welding rods that produce a low fume. Up to \_\_\_\_\_% of the fume can come from the rod. \_\_\_\_\_
7. Position your welding hood so that fumes will rise up under it and into your breathing zone. True or False? \_\_\_\_\_
8. Proper PPE for welding includes:
  - A. Long Sleeves
  - B. Welding Jacket or Sleeves
  - C. Welding Gloves
  - D. Safety Glasses or Goggles Under Welding Hood
  - E. Welding Helmet/Faceshield
  - F. Long Pants
  - G. Safety Toed Footwear
  - H. Respirators if required
  - I. All of the above
 \_\_\_\_\_



Printed Name: \_\_\_\_\_ Trained by: \_\_\_\_\_

Signature: \_\_\_\_\_ Trained by Signature: \_\_\_\_\_

Date: \_\_\_\_\_ Location: \_\_\_\_\_